

Terms of Reference (TOR) for NMFS Science Program Reviews
2016 Ecosystem Science

Purpose of the Review

The National Marine Fisheries Service (NMFS) mission includes the stewardship of living marine resources through science-based conservation and management, and the protection and restoration of healthy ecosystems. To ensure NMFS achieves this mission, it is appropriate to conduct periodic reviews of the ecosystem-related (including habitat, oceanographic, climate and ecological) science programs.

Reviews of science programs at the NMFS Regional Science Centers (including associated laboratories) and, when appropriate, the Office of Science & Technology (ST), are conducted annually to:

- Evaluate the quality, relevance, and performance of science and research conducted in NMFS Regional Science Centers (Centers) and associated laboratories
- Strategically position the Centers and ST in planning future science and research.

Objective

The objective for these reviews is to evaluate the current scientific programs of the Centers/ST that are directed to provide information relative to the management, protection and restoration of resilient and productive ecosystems. Here we define ecosystem-related science programs as those elucidating ecological, oceanographic, climate and habitat-related processes as they are linked to living marine resource (LMR) species. In addition, these reviews will assess the extent to which current science programs are focused on the priority information needs required to complete the NMFS mission. Ecosystem-related science programs addressed in these reviews may include science programs that support ecosystem-based management of fisheries and protected species; conservation and restoration of habitats; dynamics of ecosystem and LMR productivity; ecosystem-level responses to pressures; understanding the effects of pressures on food webs and the effects of food webs on LMRs; oceanographic effects on LMRs; and understanding of climate-related forcing and impacts on the LMRs.

It is recognized that there are other habitat and climate-related programs within NMFS (e.g., Habitat Conservation) and NOAA (e.g. OAR's Climate Program Office, NOS's ecological forecasting) but the focus of this review exercise will be for reviewers to provide advice on the direction and quality of the science programs that are conducted specifically in the NMFS Centers/ST.

Overarching Questions for Reviewers

Staff of the Centers will provide information that describes their relevant programs in a regional context. ST will present information relevant to national programs. The reviewers will use this information (and any ensuing discussion) to provide advice on the direction of the research programs conducted to meet management needs in the region. In doing this, the reviewers should consider these overarching questions:

1. Do the Centers/ST have clear goals and objectives for an ecosystem-related science program? Is ecosystem-related science integrated with the other science activities across Divisions within the Center/ST? Are the Center's/ST's ecosystem science and research activities appropriately prioritized and evaluated as part of an overall strategic plan?
2. Do the Center's/ST's ecosystem-related science programs focus on information to address the priority needs of the Regional Offices, other NOAA managers, Fishery Management Councils and Commissions, and other partners that require ecosystem-related information to achieve their mission?
3. Has the Center/ST appropriately established a Regional Action Plan to identify the major climate threats to the ecosystem, identify major vulnerabilities of living marine resources with respect to climate, address the core science needs to address impacts from a changing climate, and integrate this information into management advice, congruent with the NOAA Fisheries Climate Science Strategy¹?
4. What is the status of oceanographic, habitat, climate and ecological data required to fulfill ecosystem-related science needs? Has the Center developed strategies to obtain and manage such data?
5. Is the Center appropriately analyzing and modeling ecosystem-level processes? Are cumulative and integrative ecosystem-level analyses being conducted? If not, is there a plan in place to initiate or contribute to the science needed to address cumulative impacts?
6. Is the Center's oceanographic, habitat, climate and ecological advice sufficiently included into living marine resource management advice? Are there suitable mechanisms to determine when such inclusion is warranted?

¹ http://www.st.nmfs.noaa.gov/Assets/ecosystems/climate/documents/NCSS_Final.pdf

7. Are the Centers'/ST's ecosystem-related science programs and products adequately peer-reviewed relative to their purpose and use? If not, has the Center/ST developed a strategy for peer-review?
8. Does the Center/ST appropriately communicate research results and resource needs to conduct ecosystem-related science to various managers, partners, stakeholders and the public?

In all cases, the reviewers should provide recommendations for areas that need improvement.

Format

The meetings will last 3-5 days depending on the complexity of individual Center's programs. The venue will allow public access to open sessions and have wireless internet access, audio visual capability (e.g., overhead projector, microphone amplification). The Centers and ST will endeavor to provide access to open sessions of the review for the public and remotely located staff who are unable to attend in person. Prior to the review, a teleconference between Center leadership and the review panel will be held to discuss and clarify the charge to reviewers, the scope of the review, focus questions provided in the scope, background documents provided, and products of the review.

A typical review is structured with presentations that address topics related to the review overarching questions but may be organized differently e.g. by mandate, thematic or taxonomic group. These presentations will draw upon background material as described in the material to be provided by the Center:

- Day 1
 - Presentations about the Center by Center leadership
 - Theme 1: Ecosystem-related science activities and regional management needs including strategic planning and prioritization (Q1, Q2, Q3)
 - Public comment (variable)
 - Panel deliberation (closed session, 1+ hr)
- Day 2
 - Theme 2: Collection of and access to ecosystem - related data (Q4)
 - Theme 3: Advances in ecosystem level analyses and modeling (Q5)
 - Public comment (variable)
 - Panel deliberation (closed session, 1+ hr)
- Day 3
 - Theme 4: Integration of ecosystem - related information into management (Q3, Q6)
 - Theme 5: Communication of research results and resource needs, peer review (Q7, Q8)

- Public comment (variable)
 - Preparation of the panelists' recommendations (closed session, 1+ hr)
- Day 4
 - Preparation of panelists' recommendations (closed session, as needed)
- Day 5
 - Report preparation
 - Panel and Center leadership discuss the results of the review (i.e., debrief, closed session)

Panelists will be provided, at minimum, a 1 hour closed working session at the end of each day.

Stakeholders will be invited to participate as observers and to comment during the daily public comment sessions. Stakeholders providing comment during the review public comment sessions may also submit written public comments to the point of contact listed on the Center's program review website. These comments will be provided to the review panel. Public comments are for the reviewers' edification and will not necessarily be specifically responded to by the agency or the review panel.

At the close of the review, the panel and Center/ST leadership will discuss the results of the review in closed session. Additional personnel (e.g. Chief Scientist, Senior Ecosystem Advisor, ST Director, Center and ST staff, and program review coordinator) are expected to attend the closed session and this will be communicated to the panel prior to the start of the review.

Briefing and Background materials

All background materials prepared by the Center/ST will be provided to the panel electronically through the Center/ST website no later than 2 weeks prior to the review. All presentations will be provided to the panel, through the website, at the beginning of the review. Briefing books may be provided at the request of the panel chair.

Products

Each panelist will produce a succinct report detailing his or her observations of and recommendations for the themes provided within the TOR for the program review. (See Appendix 1 for template.) The chair may submit an individual report, but this is not a requirement. Individual reports are required for NMFS to comply with the Federal Advisory Committee Act (FACA, 1972). Draft reports will be submitted to the Center/ST Director at the close of the review. Final versions will be submitted by the panelists 1 week after the review concludes.

The panel chair will summarize the program review proceedings (e.g. what happened, salient issues, and recurring themes) in a report submitted to the Center/ST Director at the close of the review. The report will not represent a consensus of panelists' observations and recommendations (FACA).

Review Team Resources

NMFS will pay for the travel cost and per diem for all review panelists external to NMFS and a set fee for the services of non-governmental panelists. Each Center/ST will assist review panel members in making travel arrangements.

During the review the Center/ST will provide the review panel with wireless broadband services and space to convene closed working sessions. If requested in advance, the Center will, within reason, provide other items (e.g. desktop computers, printers, copiers) to assist the review panel with report preparation.

The review panel will, if needed, be provided 1 full day to write draft review reports at the conclusion of presentations by Center staff.

Review Panel

The scientific review panel will include 4-7 independent PhD-level or equivalent scientists with demonstrated familiarity with the topic. Panels should include:

- 1 scientist from NOAA Fisheries
- 1 scientist from another NOAA line or staff office (optional).
- 3- 5 (the majority) scientists external to NOAA.
- 1 Science Center Director (optional)

NMFS requires the chair not be a NMFS employee and encourages that the chair of the panel be a federal scientist external to NOAA. The NMFS program review coordinator will attend and provide guidance to the panel on complying with FACA. To ensure a majority of independent reviewers, reviewers who are members of committees that are involved in NMFS science (e.g. science and statistical committees, science review groups) will be from a different region than the Center being reviewed, and use of recently retired and former NMFS employees will be limited. The NMFS Assistant Administrator or their designee shall approve the Panel selections.

Agency Response

The Center/ST Director will send the chair's summary report and the panel members' individual reports to the NMFS Chief Science Advisor when the reports are received. The Center/ST Director will also prepare a brief response, including agency actions, to the chair's summary report within 10 weeks of receipt of the chair's review report package by the NMFS Chief Science Advisor. The response can include clarifying information and respond to controversial points within individual reports even if not mentioned in the chair's summary.

The NMFS Chief Science Advisor will send the package to the NMFS Assistant Administrator for clearance.

At end of 90 days after the review, all documents (chair's summary report, director's response, individual reviewers' reports) will be posted on the Center/ST websites. Authorship of the individual review reports will remain anonymous to the public.

Material to be Provided by the Center

The Centers will provide presentations made by staff and background materials in order to facilitate the independent review. All materials (e.g. power point presentation, word files, pdfs) will be named such that the file names indicate the main topic the material covers. Materials will be provided in an interactive agenda format (i.e. materials will be linked to the talks listed on the agenda) and will be marked as required primary references (must read) and secondary references (optional for further detailed information).

Appendix 1. Program Reviewer Report Templates

Chair's Summary² of Program Review of Ecosystem Science Science Center Address Dates

Review Panel Members

- Name, Affiliation, Chair
- Name, Affiliation, Reviewer (as many as needed)

Background and Overview of Meeting

General Observations and Recommendations

Panel Member's Major Recurrent Observations and Recommendations

- **Theme 1 – Management Context and Strategic Planning**
 - Observations
 - Recommendations to address issue
- **Theme 2 – Ecosystem Data**
 - Observations
 - Recommendations to address issue
- **Theme 3 – Ecosystem modeling and analysis**
 - Observations
 - Recommendations to address issue
- **Theme 4 – Incorporation into Management**
 - Observations
 - Recommendations to address issue
- **Theme 5 – Communication and Peer Review**
 - Observations
 - Recommendations to address issue
- **Other**
 - Observations
 - Recommendations to address issue

Conclusions

² Notes: This report is a summary by the chair NOT consensus. Summarized findings and recommendations should be reported as "Panel members said" NOT "Panel concluded".

Reviewer Report on Program Review of Ecosystem Science

Science Center

Address

Dates

Background

General Observations and Recommendation

Key (Specific) Findings and Recommendations (as reviewer has comments on)

- **Theme 1 – Management Context and Strategic Planning**
 - Observations
 - Recommendations to address issue
- **Theme 2 – Ecosystem Data**
 - Observations
 - Recommendations to address issue
- **Theme 3 – Ecosystem modeling and analysis**
 - Observations
 - Recommendations to address issue
- **Theme 4 – Incorporation into Management**
 - Observations
 - Recommendations to address issue
- **Theme 5 – Communication and Peer Review**
 - Observations
 - Recommendations to address issue
- **Other**
 - Observations
 - Recommendations to address issue

Conclusions